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Job No.: CTCE/BBMP/W.No.08/KRIDL/AGG/2013-14 : 24.03.2014

TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.

Reference : AEE/KH/439/2014-15

Date of Testing : 24.03.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	350	3.50	3.50	96.50	95-100
20	5250	52.50	56.00	44.00	30-70
10	3250	32.50	88.50	11.50	10-35
4.75	855	8.55	97.05	2.95	0-5

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Job No.: CTCE/BBMP/W.No.08/KRIDL/CUBE/2013-14

30.04.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of the work	: Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.
Reference	: AEE/KH/439/2014-15
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{15}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	02.04.2014	30.04.2014	8.130	356.6	15.85
2	02.04.2014	30.04.2014	8.285	368.6	16.38
3	02.04.2014	30.04.2014	8.310	378.3	16.81

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/Gradation/2013-14

30.04.2014

GRADATION FOR WMM

MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.

Reference : AEE/KH/439/2014-15

Date of Testing : 30.04.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8165**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	185	185	2.3	97.7	95-100
22.4	2500	2685	32.9	67.1	60-80
11.2	1650	4335	53.1	46.9	40-60
4.75	1250	5585	68.4	31.6	25-40
2.36	980	6565	80.4	19.6	15-30
0.600	800	7365	90.2	9.8	8-22
0.075	600	7965	97.6	2.4	0-8

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC(QB)/2013-14 07.05.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.
REFERENCE	:	AEE/KH/439/2014-15
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	07.05.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	82	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	45	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	302	Min. 220

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AIV/2013-14 07.05.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/439/2014-15
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	07.05.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.22	22.42	22.32

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Sp_Wa/2013-14 09.05.2014

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/439/2014-15
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	09.05.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2022	2023	
2	Weight of basket suspended in water	W_2 g	755	2020	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1266	1267	1268	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2016	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	749	749	747	
6	Weight of oven dried aggregate	W_4 g	1999	1998	2000	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.669	2.668	2.677	2.671
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.727	2.733	2.732	2.731
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.80%	0.90%	0.75%	0.82%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Bit/2013-14 09.05.2014

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.
REFERENCE	AEE/KH/439/2014-15
SAMPLE I/D	Roads near De-Enclave in ward No.08.
DATE OF TESTING	09.05.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at De-Enclave in Ward No.08, BBMP, Bangalore.
Reference	AEE/KH/439/2014-15
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	09.05.2014

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	390	7.5	7.50	92.50	90-100	
4.75	2850	54.8	62.31	37.69	35-51	
2.36	605	11.6	73.94	26.06	24-39	
1.18	475	9.1	83.08	16.92	15-30	
0.3	265	5.1	88.17	11.83	9-19	
0.075	210	4.0	92.21	7.79	3-8	

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	300	5.7	5.66	94.34	90-100	
4.75	2510	47.4	53.02	46.98	35-51	
2.36	800	15.1	68.11	31.89	24-39	
1.18	425	8.0	76.13	23.87	15-30	
0.3	400	7.5	83.68	16.32	9-19	
0.075	485	9.2	92.83	7.17	3-8	

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